

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT****ENGINEERING AND COMPLIANCE****APPLICATION PROCESSING AND CALCULATIONS**

PAGE 1 of 16

APPL. NO.

498931, -32 &amp; -33

DATE:

10/07/09

PROCESSED BY

S. JIANG

CHECKED BY

D. GORDON

**EVALUATION REPORT FOR PERMIT TO OPERATE**

**Applicant's Name:** CAMBRO MANUFACTURING COMPANY Facility ID: 8309

**Mailing Address:** P.O. BOX 2000  
HUNTINGTON BEACH, CALIFORNIA 92647-2000

**Equipment Location:** 7601 CLAY AVENUE  
HUNTINGTON BEACH, CALIFORNIA 92648

**Appl. No. 498931 – Change of Condition for the existing ICE (PO: F19915)**

The operating permit is revised by the addition of the following conditions:

- THE MINIMUM TEMPERATURE OF THE ENGINE EXHAUST AT THE NON-SELECTIVE CATALYTIC REDUCTION SYSTEM UNIT SHALL BE AT LEAST 750 DEGREES FAHRENHEIT (EXCEPT DURING THE COLD ENGINE START-UP, NOT TO EXCEED 30 MINUTES).  
[RULE 1303(a)(1)-BACT]
- THE MAXIMUM TEMPERATURE OF THE ENGINE EXHAUST AT THE OUTLET OF THE NON-SELECTIVE CATALYTIC REDUCTION SYSTEM UNIT SHALL NOT EXCEED 1,350 DEGREES FAHRENHEIT.  
[RULE 1303(a)(1)-BACT]
- THE OPERATOR SHALL INSTALL AND MAINTAIN AN EXHAUST GAS OXYGEN SENSOR AT THE INLET OF THE CATALYST. THE DISPLAY OF THE EXHAUST GAS CONCENTRATION SHALL READ IN EITHER PERCENT OXYGEN, LAMBDA OR MILLIVOLTS (MV). IF THE READING IS IN MILLIVOLTS OR LAMBDA, THE OPERATOR SHALL MAINTAIN ON SITE A CONVERSION CHART THAT CORRELATES THE MILLIVOLTS OR LAMBDA READING TO THE OXYGEN CONCENTRATION. THE EXHAUST GAS CONCENTRATION SHALL BE MAINTAINED BETWEEN 0.2 AND 0.5 PERCENT OXYGEN.  
[RULE 1303(a)(1)-BACT]
- THIS ENGINE SHALL BE OPERATED ONLY AT A SPECIFIC LOAD EQUIVALENT TO 350 B.H.P. AT 1,400 R.P.M. (EXCEPT DURING START-UP AND SHUT-DOWN OPERATION). EVIDENCE OF COMPLIANCE WITH THIS CONDITION SHALL INCLUDE, BUT NOT BE LIMITED TO, A VISIBLE DISPLAY SHOWING THE RPM RATING OF THE ENGINE. THE RPM RATING OF THE ENGINE SHALL BE MAINTAINED AT AROUND 1,400 RPM (+/-10% IS ACCEPTABLE).  
[RULE 1110.2]

**ENGINEERING AND COMPLIANCE****APPLICATION PROCESSING AND CALCULATIONS**

APPL. NO.

498931, -32 &amp; -33

DATE:

10/07/09

PROCESSED BY

S. JIANG

CHECKED BY

D. GORDON

- THIS ENGINE SHALL BE OPERATED IN COMPLIANCE WITH ALL THE MONITORING, TESTING, RECORDKEEPING AND REPORTING REQUIREMENTS OF RULE 1110.2 (f)(1) – AMENDED 2/1/2008, AS OUTLINED BELOW:
    - THE OPERATOR SHALL INSTALL AND MAINTAIN AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER ON THE ENGINE (DISPLAY READING SHALL BE READILY AVAILABLE) TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
    - CONDUCT SOURCE TESTING FOR NOX, VOC REPORTED AS CARBON, AND CO CONCENTRATIONS (CONCENTRATION IN PPM BY VOLUME, CORRECTED TO 15% OXYGEN ON DRY BASIS) AT LEAST ONCE EVERY TWO YEARS, OR EVERY 8,760 OPERATING HOURS, WHICHEVER OCCURS FIRST. THE SOURCE TEST FREQUENCY MAY BE REDUCED TO ONCE EVERY THREE YEARS IF THE ENGINE HAS OPERATED LESS THAN 2,000 HOURS SINCE THE LAST SOURCE TEST. IF THE ENGINE HAS NOT BEEN OPERATED WITHIN 3 MONTHS OF THE DATE A SOURCE TEST IS REQUIRED, THE SOURCE TEST SHALL BE CONDUCTED WHEN THE ENGINE RESUMES OPERATION FOR A PERIOD LONGER THAN EITHER 7 CONSECUTIVE DAYS OR 15 CUMULATIVE DAYS OF OPERATION. THE OPERATOR SHALL KEEP SUFFICIENT OPERATING RECORDS TO DEMONSTRATE THAT IT MEETS THE REQUIREMENTS FOR EXTENSION OF THE SOURCE TESTING DEADLINES.
- THE SOURCE TEST SHALL BE CONDUCTED FOR A MINIMUM OF 30 MINUTES UNDER THE DEFINED LOAD CONDITION SPECIFIED IN CONDITION NO. 10. THE OPERATOR SHALL NOT BE REQUIRED TO CONDUCT THE 15-MINUTE NOX AND CO EMISSIONS TESTS AT THE ACTUAL PEAK LOAD AND AT THE MINIMUM LOAD AS SPECIFIED IN RULE 1110.2 (F)(1)(C)(II).
- THE OPERATOR SHALL USE ONLY A SOURCE TEST CONTRACTOR THAT IS APPROVED BY THE EXECUTIVE OFFICER UNDER THE DISTRICT'S LABORATORY APPROVAL PROGRAM (LAP) FOR THE NECESSARY TEST METHODS. THE OPERATOR SHALL COMPLY WITH THE PROCEDURES STATED IN RULE 1110.2 (F)(1)(C)(IV) THROUGH (VII) – AMENDED 2/1/2008, REGARDING THE SUBMITTAL OF SOURCE TEST PROTOCOL, SOURCE TEST REPORTS AND UTILITIES FOR SAMPLING AND TESTING EQUIPMENT.
- MAINTAIN A MONTHLY OPERATING ENGINE LOG THAT INCLUDES:
    - (i) TOTAL HOURS OF OPERATION,
    - (ii) TYPE OF GASEOUS FUEL,
    - (iii) FUEL CONSUMPTION (CUBIC FEET OF GAS), AND
    - (iv) CUMULATIVE HOURS OF OPERATION SINCE THE LAST SOURCE TEST REQUIRED IN SUBPARAGRAPH (f)(1)(C) OF RULE 1110.2 - AMENDED 2/1/2008.

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT****ENGINEERING AND COMPLIANCE****APPLICATION PROCESSING AND CALCULATIONS**

PAGE 3 of 16

APPL. NO.

498931, -32 &amp; -33

DATE:

10/07/09

PROCESSED BY

S. JIANG

CHECKED BY

D. GORDON

THE LOG SHALL BE MADE AVAILABLE FOR INSPECTION AT ANY TIME.

- THE OPERATOR SHALL COMPLY WITH THE REPORTING REQUIREMENTS OF RULE 1110.2 (F)(1)(H)(I) THROUGH (III) – AMENDED 2/1/2008, PERTAINING TO ANY EQUIPMENT BREAKDOWN THAT RESULTS IN EMISSIONS IN EXCESS OF RULE OR PERMIT EMISSION LIMITS.

[RULE 1110.2]

In addition, the operating permit is revised by the modification of the following conditions:

- THE OPERATOR SHALL KEEP RECORDS IN A MANNER APPROVED BY THE DISTRICT FOR THE FOLLOWING PARAMETER(S) OR ITEMS(S):

PERCENT OXYGEN AT THE ~~OUTLET~~ **INLET** OF THE CATALYST

[RULE 1303(a)(1)-BACT]

**Minor corrections to the ICE equipment description (P/O F19915) are made as follows:**

INTERNAL COMBUSTION ENGINE, CATERPILLAR, MODEL NO. G3408SITA, 450 BHP, NATURAL GAS FIRED, TURBOCHARGED AND AFTERCOOLED, **4 8** CYLINDERS, WITH A CATALYTIC CONVERTER, ~~WITH~~ **AND** AN AIR-TO-FUEL RATIO CONTROLLER.

**Appl. No. 498932 – New Dust Collector**

AIR POLLUTION CONTROL SYSTEM CONSISTING OF:

1. DUST COLLECTOR, TORIT, MODEL NO. DFT3-12, PULSE JET TYPE, WITH 12 CARTRIDGES, EACH 1'-2" DIA. X 3'-2" L., AND 3,048 SQ. FT. TOTAL FILTER AREA.
2. EXHAUST SYSTEM, WITH A 20 H.P. BLOWER VENTING PLASTIC GRINDER SYSTEMS NOS. 1, 2 AND 3.

**Appl. No. 498933 - MINOR TITLE V FACILITY PERMIT REVISION**

REVISION OF TITLE V FACILITY PERMIT PER RULE 301(1)(7).

**PERMIT CONDITIONS**

Application No. 498931 – ICE

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

[RULE 204]

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT****ENGINEERING AND COMPLIANCE****APPLICATION PROCESSING AND CALCULATIONS**

PAGE 4 of 16

APPL. NO.

498931, -32 &amp; -33

DATE:

10/07/09

PROCESSED BY

S. JIANG

CHECKED BY

D. GORDON

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.  
[RULE 204]
3. THE OPERATOR SHALL INSTALL AND MAINTAIN A(N) NON-RESETTABLE TOTALIZING FUEL METER TO ACCURATELY INDICATE THE FUEL USAGE OF THE EQUIPMENT.  
[RULE 1303(a)(1)-BACT]
4. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES OR REGULATIONS: NOX RULE 1110.2 VOC RULE 1110.2 CO RULE 1110.2  
[RULE 1110.2]
5. THE OPERATOR SHALL LIMIT EMISSIONS FROM THIS EQUIPMENT AS FOLLOWS:  
NOX: 0.15 GM/HP-HR VOC: 0.15 GM/HP-HR CO: 0.60 GM/HP-HR  
[RULE 1303(a)(1)-BACT]
6. THE OPERATOR SHALL INSTALL AND MAINTAIN A(N) SENSOR TO ACCURATELY INDICATE THE TEMPERATURE AT THE INLET AND OUTLET OF THE CATALYST. THE OPERATOR SHALL ALSO INSTALL AND MAINTAIN A DEVICE TO CONTINUOUSLY RECORD THE PARAMETER BEING MEASURED.  
[RULE 1303(a)(1)-BACT]
7. THE MINIMUM TEMPERATURE OF THE ENGINE EXHAUST AT THE NON-SELECTIVE CATALYTIC REDUCTION SYSTEM UNIT SHALL BE AT LEAST 750 DEGREES FAHRENHEIT (EXCEPT DURING THE COLD ENGINE START-UP, NOT TO EXCEED 30 MINUTES).  
[RULE 1303(a)(1)-BACT]
8. THE MAXIMUM TEMPERATURE OF THE ENGINE EXHAUST AT THE OUTLET OF THE NON-SELECTIVE CATALYTIC REDUCTION SYSTEM UNIT SHALL NOT EXCEED 1,350 DEGREES FAHRENHEIT.  
[RULE 1303(a)(1)-BACT]
9. THE OPERATOR SHALL INSTALL AND MAINTAIN AN EXHAUST GAS OXYGEN SENSOR AT THE INLET OF THE CATALYST. THE DISPLAY OF THE EXHAUST GAS CONCENTRATION SHALL READ IN EITHER PERCENT OXYGEN, LAMBDA OR MILLIVOLTS (MV). IF THE READING IS IN MILLIVOLTS OR LAMBDA, THE OPERATOR SHALL MAINTAIN ON SITE A CONVERSION CHART THAT CORRELATES THE MILLIVOLTS OR LAMBDA READING TO THE OXYGEN CONCENTRATION. THE EXHAUST GAS CONCENTRATION SHALL BE MAINTAINED BETWEEN 0.2 AND 0.5 PERCENT OXYGEN.  
[RULE 1303(a)(1)-BACT]

**ENGINEERING AND COMPLIANCE****APPLICATION PROCESSING AND CALCULATIONS**

APPL. NO.

498931, -32 &amp; -33

DATE:

10/07/09

PROCESSED BY

S. JIANG

CHECKED BY

D. GORDON

10. THIS ENGINE SHALL BE OPERATED ONLY AT A SPECIFIC LOAD EQUIVALENT TO 350 B.H.P. AT 1,400 R.P.M. (EXCEPT DURING START-UP AND SHUT-DOWN OPERATION). EVIDENCE OF COMPLIANCE WITH THIS CONDITION SHALL INCLUDE, BUT NOT BE LIMITED TO, A VISIBLE DISPLAY SHOWING THE RPM RATING OF THE ENGINE. THE RPM RATING OF THE ENGINE SHALL BE MAINTAINED AT AROUND 1,400 RPM (+/-10% IS ACCEPTABLE).  
[RULE 1110.2]
11. THIS ENGINE SHALL BE OPERATED IN COMPLIANCE WITH ALL THE MONITORING, TESTING, RECORDKEEPING AND REPORTING REQUIREMENTS OF RULE 1110.2 (F)(1) – AMENDED 2/1/2008, AS OUTLINED BELOW:
- A. THE OPERATOR SHALL INSTALL AND MAINTAIN AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER ON THE ENGINE (DISPLAY READING SHALL BE READILY AVAILABLE) TO DETERMINE THE ENGINE ELAPSED OPERATING TIME.
- B. CONDUCT SOURCE TESTING FOR NOX, VOC REPORTED AS CARBON, AND CO CONCENTRATIONS (CONCENTRATION IN PPM BY VOLUME, CORRECTED TO 15% OXYGEN ON DRY BASIS) AT LEAST ONCE EVERY TWO YEARS, OR EVERY 8,760 OPERATING HOURS, WHICHEVER OCCURS FIRST. THE SOURCE TEST FREQUENCY MAY BE REDUCED TO ONCE EVERY THREE YEARS IF THE ENGINE HAS OPERATED LESS THAN 2,000 HOURS SINCE THE LAST SOURCE TEST. IF THE ENGINE HAS NOT BEEN OPERATED WITHIN 3 MONTHS OF THE DATE A SOURCE TEST IS REQUIRED, THE SOURCE TEST SHALL BE CONDUCTED WHEN THE ENGINE RESUMES OPERATION FOR A PERIOD LONGER THAN EITHER 7 CONSECUTIVE DAYS OR 15 CUMULATIVE DAYS OF OPERATION. THE OPERATOR SHALL KEEP SUFFICIENT OPERATING RECORDS TO DEMONSTRATE THAT IT MEETS THE REQUIREMENTS FOR EXTENSION OF THE SOURCE TESTING DEADLINES.

THE SOURCE TEST SHALL BE CONDUCTED FOR A MINIMUM OF 30 MINUTES UNDER THE DEFINED LOAD CONDITION SPECIFIED IN CONDITION NO. 10. THE OPERATOR SHALL NOT BE REQUIRED TO CONDUCT THE 15-MINUTE NOX AND CO EMISSIONS TESTS AT THE ACTUAL PEAK LOAD AND AT THE MINIMUM LOAD AS SPECIFIED IN RULE 1110.2 (F)(1)(C)(II).

THE OPERATOR SHALL USE ONLY A SOURCE TEST CONTRACTOR THAT IS APPROVED BY THE EXECUTIVE OFFICER UNDER THE DISTRICT'S LABORATORY APPROVAL PROGRAM (LAP) FOR THE NECESSARY TEST METHODS. THE OPERATOR SHALL COMPLY WITH THE PROCEDURES STATED IN RULE 1110.2 (F)(1)(C)(IV) THROUGH (VII) – AMENDED 2/1/2008, REGARDING THE SUBMITTAL OF SOURCE TEST PROTOCOL, SOURCE TEST REPORTS AND UTILITIES FOR SAMPLING AND TESTING EQUIPMENT.

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT****ENGINEERING AND COMPLIANCE****APPLICATION PROCESSING AND CALCULATIONS**

PAGE 6 of 16

APPL. NO.

498931, -32 &amp; -33

DATE:

10/07/09

PROCESSED BY

S. JIANG

CHECKED BY

D. GORDON

**C. MAINTAIN A MONTHLY OPERATING ENGINE LOG THAT INCLUDES:**

- (i) TOTAL HOURS OF OPERATION,
- (ii) TYPE OF GASEOUS FUEL,
- (iii) FUEL CONSUMPTION (CUBIC FEET OF GAS), AND
- (iv) CUMULATIVE HOURS OF OPERATION SINCE THE LAST SOURCE TEST REQUIRED IN SUBPARAGRAPH (f)(1)(C) OF RULE 1110.2 - AMENDED 2/1/2008.

THE LOG SHALL BE MADE AVAILABLE FOR INSPECTION AT ANY TIME.

**D. THE OPERATOR SHALL COMPLY WITH THE REPORTING REQUIREMENTS OF RULE 1110.2 (F)(1)(H)(I) THROUGH (III) – AMENDED 2/1/2008, PERTAINING TO ANY EQUIPMENT BREAKDOWN THAT RESULTS IN EMISSIONS IN EXCESS OF RULE OR PERMIT EMISSION LIMITS.**

[RULE 1110.2]

**12. THE OPERATOR SHALL KEEP RECORDS IN A MANNER APPROVED BY THE DISTRICT FOR THE FOLLOWING PARAMETER(S) OR ITEMS(S):**

PERCENT OXYGEN AT THE INLET OF THE CATALYST  
[RULE 1303(a)(1)-BACT]

**Periodic Monitoring:**

- 13. THE OPERATOR SHALL CONDUCT AN INSPECTION FOR VISIBLE EMISSIONS FROM ALL STACKS AND OTHER EMISSION POINTS OF THIS EQUIPMENT WHENEVER THERE IS A PUBLIC COMPLAINT OF VISIBLE EMISSIONS, WHENEVER VISIBLE EMISSIONS ARE OBSERVED, AND ON AN ANNUAL BASIS, AT LEAST, UNLESS THE EQUIPMENT DID NOT OPERATE DURING THE ENTIRE ANNUAL PERIOD. THE ROUTINE ANNUAL INSPECTION SHALL BE CONDUCTED WHILE THE EQUIPMENT IS IN OPERATION AND DURING DAYLIGHT HOURS. IF ANY VISIBLE EMISSIONS (NOT INCLUDING CONDENSED WATER VAPOR) ARE DETECTED THAT LAST MORE THAN THREE MINUTES IN ANY ONE-HOUR, THE OPERATOR SHALL EITHER:**
- A. VERIFY AND CERTIFY WITHIN 24 HOURS THAT THE EQUIPMENT CAUSING THE EMISSION AND ANY ASSOCIATED AIR POLLUTION CONTROL EQUIPMENT ARE OPERATING NORMALLY ACCORDING TO THEIR DESIGN AND STANDARD PROCEDURES AND UNDER THE SAME CONDITIONS UNDER WHICH COMPLIANCE WAS ACHIEVED IN THE PAST;**
  - B. TAKE CORRECTIVE ACTION(S) THAT ELIMINATES THE VISIBLE EMISSIONS WITHIN 24 HOURS AND REPORT THE VISIBLE EMISSIONS AS A POTENTIAL DEVIATION IN ACCORDANCE WITH THE REPORTING REQUIREMENTS IN SECTION K OF THIS PERMIT; OR**
  - C. HAVE A CARB-CERTIFIED SMOKE READER DETERMINE COMPLIANCE WITH THE**



**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT****ENGINEERING AND COMPLIANCE****APPLICATION PROCESSING AND CALCULATIONS**

PAGE 7 of 16

APPL. NO.

498931, -32 &amp; -33

DATE:

10/07/09

PROCESSED BY

S. JIANG

CHECKED BY

D. GORDON

OPACITY STANDARD, USING EPA METHOD 9 OR THE PROCEDURES IN THE CARB MANUAL "VISIBLE EMISSION EVALUATION", WITHIN THREE BUSINESS DAYS AND REPORT ANY DEVIATIONS TO AQMD.

THE OPERATOR SHALL KEEP THE RECORDS IN ACCORDANCE WITH THE

RECORDKEEPING REQUIREMENTS IN SECTION K OF THIS PERMIT AND THE

FOLLOWING RECORDS:

- A. STACK OR EMISSION POINT IDENTIFICATION;
- B. DESCRIPTION OF ANY CORRECTIVE ACTIONS TAKEN TO ABATE VISIBLE EMISSIONS;
- C. DATE AND TIME VISIBLE EMISSION WAS ABATED; AND
- D. VISIBLE EMISSION OBSERVATION RECORDED BY A CERTIFIED SMOKE READER.  
[RULE 3004 (a)(4)]

**Emissions And Requirements:**

14. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: 2000 PPM, RULE 1110.2  
CO: 0.60 GM/HP-HR, BACT, 5-10-96  
NOX: 36 PPM, RULE 1110.2  
NOX: 0.15 GM/HP-HR, BACT, 5-10-96  
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS  
VOC: 250 PPM, RULE 1110.2  
VOC: 0.15 GM/HP-HR, BACT, 5-10-96  
O<sub>2</sub>: 0.5%, RULE 3004(A)(1), BACT, 5-10-96

**Appl. No. 498932**

- 1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.  
[RULE 204]
- 2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.  
[RULE 204]

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT****ENGINEERING AND COMPLIANCE****APPLICATION PROCESSING AND CALCULATIONS**

PAGE 8 of 16

APPL. NO.

498931, -32 &amp; -33

DATE:

10/07/09

PROCESSED BY

S. JIANG

CHECKED BY

D. GORDON

3. THE OPERATOR SHALL INSTALL AND MAINTAIN A MECHANICAL GAUGE TO INDICATE, IN INCHES WATER COLUMN, THE STATIC PRESSURE DIFFERENTIAL ACROSS THE FILTERS.  
[RULE 1303(A)(1)-BACT]
4. THE PRESSURE DROP ACROSS THE FILTERS SHALL BE MAINTAINED BETWEEN 3 AND 10 INCHES WATER COLUMN.  
[RULE 1303(A)(1)-BACT]
5. DUST COLLECTED IN THE DUST COLLECTOR SHALL BE DISCHARGED ONLY INTO ENCLOSED CONTAINERS OR RETURNED TO PROCESS AND SHALL NOT BE HANDLED IN A MANNER THAT MAY RESULT IN THE RE-RELEASE OF COLLECTED MATERIALS TO THE ATMOSPHERE.  
[RULE 1303(A)(1)-BACT]

**PERIODIC MONITORING:**

6. THE OPERATOR SHALL CONDUCT AN INSPECTION FOR VISIBLE EMISSIONS FROM ALL STACKS AND OTHER EMISSION POINTS OF THIS EQUIPMENT WHENEVER THERE IS A PUBLIC COMPLAINT OF VISIBLE EMISSIONS, WHENEVER VISIBLE EMISSIONS ARE OBSERVED, AND ON A QUARTERLY BASIS, AT LEAST, UNLESS THE EQUIPMENT DID NOT OPERATE DURING THE ENTIRE QUARTERLY PERIOD. THE ROUTINE QUARTERLY INSPECTION SHALL BE CONDUCTED WHILE THE EQUIPMENT IS IN OPERATION AND DURING DAYLIGHT HOURS. IF ANY VISIBLE EMISSIONS (NOT INCLUDING CONDENSED WATER VAPOR) ARE DETECTED, THE OPERATOR SHALL TAKE CORRECTIVE ACTION(S) THAT ELIMINATES THE VISIBLE EMISSIONS WITHIN 24 HOURS AND REPORT THE VISIBLE EMISSIONS AS A POTENTIAL DEVIATION IN ACCORDANCE WITH THE REPORTING REQUIREMENTS IN SECTION K OF THIS PERMIT.

THE OPERATOR SHALL KEEP THE RECORDS IN ACCORDANCE WITH THE RECORDKEEPING REQUIREMENTS IN SECTION K OF THIS PERMIT AND THE FOLLOWING RECORDS:

- A. STACK OR EMISSION POINT IDENTIFICATION;
- B. DESCRIPTION OF ANY CORRECTIVE ACTIONS TAKEN TO ABATE VISIBLE EMISSIONS; AND
- C. DATE AND TIME VISIBLE EMISSION WAS ABATED.  
[RULE 3004 (a)(4)]

**Emissions and Requirements:**

7. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS



**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT****ENGINEERING AND COMPLIANCE****APPLICATION PROCESSING AND CALCULATIONS**

PAGE 9 of 16

APPL. NO.

498931, -32 &amp; -33

DATE:

10/07/09

PROCESSED BY

S. JIANG

CHECKED BY

D. GORDON

**BACKGROUND/HISTORY**

Cambro Manufacturing Co (Cambro) manufactures plastic products for the commercial food services industry. Cambro operates two facilities in Huntington Beach. Facility with an ID of 8309 is located at 7601 Clay Avenue, which is engaged in the compression molding and injection molding processes. The other facility (ID: 119021) is located at 5801 Skylab Road, which is engaged in the rotational molding and injection molding processes. Cambro Clay Avenue facility is a Title V facility but not RECLAIM. Cambro Skylab Road facility is a Non Title V and Non RECLAIM facility.

The initial Title V Permit for Cambro Clay Avenue facility was issued on July 3, 2002 and expired on July 2, 2007. A Title V Permit Renewal application was submitted on April 25, 2007, and the proposed renewal permit will be submitted to EPA for review simultaneously with the subject applications.

On May 20, 2009, Cambro submitted the following applications:

<b><u>A/N</u></b>	<b><u>Type</u></b>	<b><u>Previous Permit No.</u></b>	<b><u>Equipment</u></b>
498931	Change of Condition	F19915	ICE
498932	Permit to Construct	N/A	Dust collector > 500 sq. ft.
498933	Plan	N/A	Minor Title V Permit Revision

**Appl. No. 498931** was submitted for change of permit condition that will specify only one operating load for the engine. The engine is used to drive an air compressor that provides compressed air to the manufacturing processes on site. Cambro does not operate the engine at a variable load and cannot perform the maximum and minimum load source tests, which are required by Rule 1110.2. Therefore, Cambro submitted this application to limit the engine to operating at one defined load,  $\pm 10\%$ .

**Appl. No. 498932** was submitted for permit to construct for a new dust collector that will control PM emissions from three existing plastic grinding systems. The three existing grinding systems are covered under class-III application nos. 466443, 466444 and 466445.

**Appl. No. 498933** was submitted as a plan for the minor revision of the Title V permit as specified in Rule 301.

**PROCESS DESCRIPTION****Appl. No. 498931**

The stationary internal combustion engine is to drive an air compressor that provides compressed air to the manufacturing processes in the plant. The unit is a Caterpillar 8-cylinder industrial engine fueled by natural gas. The engine is turbocharged and has an aftercooler. The engine is equipped with a catalytic converter and air/fuel ratio controller.



According to the permit applicant, although the maximum rating of the engine is 450 BHP based on engine manufacturer specs, it is actually operated at 350 BHP (+/- 10%) at 1400 RPM in practical operation. This requested permit condition change does not involve any physical modification to the equipment, therefore, it is expected that emissions will not be affected. Consequently, BACT will not be triggered. (Note: Since Rule 1110.2 was amended on 2/1/2008, some new requirements of the amended rule will apply. Hence, the new conditions will be updated to comply with the amended Rule 1110.2.)

In order to verify the facility's declaration that the actual operation of the engine is 350 BHP at 1,400 RPM, I examined the engine's fuel consumption curve which showed that at 350 BHP at 1,400 RPM, the brake specific fuel consumption (BSFC) is at around 7,000 BTU/BHP-hr based on a LHV of 905 BTU/ft<sup>3</sup>. Based on the facility's fuel consumption records, the fuel consumption is 1,877 ft<sup>3</sup>/hr averaged over a 6-month period from January 1 to June 30, 2008. 1,877 ft<sup>3</sup>/hr is the raw reading before the pressure factor of 1.269 is applied. Therefore, the actual fuel consumption is calculated as following:

$$(1,877 \text{ ft}^3/\text{hr pressurized NG}) (1.269) = 2,382 \text{ ft}^3/\text{hr NG}$$

$$\text{Local gas heat value} = 1,024 \text{ BTU/ft}^3 \text{ (from Gas Co.)}$$

$$(2,382 \text{ ft}^3/\text{hr}) (1,024 \text{ BTU/ft}^3) / (350 \text{ BHP}) = 6,969 \text{ BTU/BHP-hr}$$

and,

$$(6,969 \text{ BTU/BHP-hr} - 7,000 \text{ BTU/BHP-hr}) / (7,000 \text{ BTU/BHP-hr}) \times 100\% = -0.44\%$$

**Therefore, the facility's declaration that the engine's actual operation is 350 BHP at 1,400 RPM is credible.**

The District's NSR is based on maximum potential emissions. Therefore, despite the fact that the effective (i.e., practical operation) rating of the engine is only 350 BHP, the emissions for this application still ought to be based on the maximum rating of 450 BHP in accordance with NSR guidelines. However, the NSR emissions that are currently entered in our NSR database for this engine (application no. 342750) appear to be incorrect, and should be changed. Therefore, emission re-calculations are performed in the next section just for the NSR database. The emission calculations for A/N 342750 are also attached at end of this report.

### **Appl. No. 498932**

The new dust collector will be used to control PM emissions from three existing plastic grinding systems. The three existing grinding systems are covered under class-III application nos. 466443, 466444 and 466445.

This facility operates 16 hrs/day, 6 days/wk, and 52 wks/yr.

**ENGINEERING AND COMPLIANCE****APPLICATION PROCESSING AND CALCULATIONS**

APPL. NO.

498931, -32 &amp; -33

DATE:

10/07/09

PROCESSED BY

S. JIANG

CHECKED BY

D. GORDON

**EMISSION CALCULATIONS****Appl. No. 498931**

Operating Schedule (Max.): 24 hrs/day, 365 days/yr

I.C. ENGINE rated at: 450 BHP, Natural Gas fired

Fuel Consumption: (7,000 BTU/BHP-hr)\* (450 BHP) / (905 BTU/ft<sup>3</sup>) = 3,480 ft<sup>3</sup>/hr NG

\* 7,000 BTU/BHP-hr is obtained from Caterpillar - "Fuel Consumption Data for HCR TA-90 at 1,800 rpm", which is attached at end of this report. The chart is based on dry natural gas having a low heat value of 905 BTU/ft<sup>3</sup>.

Emission Factors:

Pollutants	Permit Limit	Emission Factor <sup>1</sup>
	(Gram/bhp-hr)	(lb/MMBtu)
VOC	0.15	-
NO <sub>x</sub>	0.15	-
CO	0.60	-
SO <sub>x</sub>	-	0.000588
PM10 <sup>2</sup>	-	0.00950

Note:

1. AP-42 Table 3.2-3, Uncontrolled Emission Factors for 4-stroke rich-burn engines
2. PM10 emissions are for engines equipped with a PCC.

The formula to determine the emission rates (R1=R2) for VOC, NO<sub>x</sub>, and CO, is indicated as follows:

$$EmissionRate, (R1 = R2), \frac{lb}{hr} = \frac{\left( EmissionFactor, \frac{grams}{bhp \cdot hr} \right) (EngineRating, bhp)}{453.6 \text{ grams} / lb}$$

The formula to determine emission rates for SO<sub>x</sub>, and PM10, is indicated as follows:

$$EmissionRate(R1 = R2), \frac{lb}{hr} = \frac{\left( EmissionFactor, \frac{lb}{10^6 \text{ Btu}} \right) \left( 1050, \frac{Btu}{ft^3} \right) (FuelUsage, \frac{ft^3}{hr})}{1 \times 10^6}$$

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT****ENGINEERING AND COMPLIANCE****APPLICATION PROCESSING AND CALCULATIONS**

PAGE 12 of 16

APPL. NO.

498931, -32 &amp; -33

DATE:

10/07/09

PROCESSED BY

S. JIANG

CHECKED BY

D. GORDON

The calculated emission results are indicated below:

		Hourly (lbs/hr)	Daily (lbs/day)	Annually (lbs/yr)	30 day ave. (lbs/day)	30day NSR (lbs/day)
R1=R2	VOC	0.149	3.57	1,300	3.57	4
R1=R2	NO <sub>x</sub>	0.149	3.57	1,300	3.57	4
R1=R2	SO <sub>x</sub>	0.0022	0.05	18.8	0.052	0
R1=R2	CO	0.595	14.29	5,200	14.29	14
R1=R2	PM-10	0.0347	0.83	303.3	0.833	1

Daily (lbs/day) = (Hourly, lbs/hr) (24 hr/day)

Annually (lbs/yr) = Daily (lbs/day) (7 days/week) (52 weeks/yr)

30-day average = Daily, lbs/day

**Appl. No. 498932**

The new dust collector will be used to control PM emissions from three existing plastic grinding systems. The three existing grinding systems are covered under class-III application nos. 466443, 466444 and 466445.

**Assumption for each existing grinding system:**

Pneumatic conveying velocity = 6,000 fpm

Flow rate = (6,000 fpm) (0.5 ft)<sup>2</sup> (π/4) = 1,178 cfm

If all three grinding systems are in operation simultaneously, the total airflow will be  
(1,178 cfm) × 3 = 3,534 cfm

Since the dust collector blower is designed at 7,000 scfm, the new dust collector is capable to handle all three grinding systems.

**Dust Collector Air to Cloth ratio:**

Baghouse Type: Pulse Jet

Baghouse exhaust blower flowrate = 7,000 Scfm

Total filter area = 3,048 ft<sup>2</sup>

Baghouse Receiver Air to Cloth (A/C) ratio = (7,000 cfm) / (3,048 ft<sup>2</sup>) = 2.3 fpm

A baghouse with pulse jets can operate at A/C ratio up to 12 fpm.

**ENGINEERING AND COMPLIANCE****APPLICATION PROCESSING AND CALCULATIONS**

APPL. NO.

498931, -32 &amp; -33

DATE:

10/07/09

PROCESSED BY

S. JIANG

CHECKED BY

D. GORDON

**RULES AND REGULATIONS EVALUATION****Rule 212:** Standards for Approving PermitsAppl. no. 498931

No physical modifications were made on the engine, therefore, the emissions remain unchanged. Therefore, public notification is not required.

Appl. no. 498932

PM10 emissions are expected to be reduced with the new dust collector. Therefore, public notification is not required.

**Rule 401:** **Visible Emissions** – Compliance is expected from well maintained and properly operated equipment.

**Rule 402:** **Public Nuisance** – The potential for public nuisance from the operation of this equipment is minimal. The facility is located in a commercial/industrial area.

**Rule 404:** Particulate Matter ConcentrationAppl. no. 498931

The engine will operate on natural gas only. Compliance is expected.

Appl. no. 498932

Compliance is expected from a well-maintained equipment.

**Rule 431.1:** Sulfur Content of Gaseous FuelsAppl. no. 498931

The owner will buy gas from a gas utility company that must sell gas with less than 16 ppm of sulfur compounds (calculated as H<sub>2</sub>S). Compliance is expected with this rule.

**Rule 1110.2:** Emissions from Gaseous and/or Liquid Fueled Engines**Appl. no. 498931**

Since the application for this engine was submitted after 2/1/2008 and deemed complete after 10/2007, this will be subject to the new requirements of Rule 1110.2 (amended 2/1/2008). The discussion below details the new Rule 1110.2 requirements for this engine and evaluates compliance with these requirements:

Emission Limits: Rule 1110.2 emission limits and their corresponding effective dates are (for BHP < 500) indicated as follows:

Effective Date	Emission in ppmvd, corrected to 15% O <sub>2</sub>		
	NO <sub>x</sub>	VOC	CO
2/1/2008	45	250	2000
7/1/2010	45	250	2000
7/1/2011	11	30	250

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT****ENGINEERING AND COMPLIANCE****APPLICATION PROCESSING AND CALCULATIONS**

PAGE 14 of 16

APPL. NO.

498931, -32 &amp; -33

DATE:

10/07/09

PROCESSED BY

S. JIANG

CHECKED BY

D. GORDON

This engine was initially issued PC/PO in 1999 with BACT emissions requirement conditions of NOX: 0.15 gm/hp-hr, VOC: 0.15 gm/hp-hr, and CO: 0.60 gm/hp-hr, which are equivalent and/or more stringent than the emission limits required by this rule. A source test was performed by AKI for this engine on October 6, 2006, and the report indicates results of NOX: 0.005 gm/hp-hr, VOC: 0.004 gm/hp-hr, and CO: 0.04 gm/hp-hr. Compliance with this rule is expected. The source test report is attached at end of this report.

CEMS or I & M Plan Requirement: This engine is rated at 450 BHP and it is the only engine at this location. Therefore, CEMS will not be required. In lieu of a CEMS, however, an I & M plan will be required. The facility already submitted an I & M plan and is currently being evaluated under A/N 485445.

Source Testing Requirements: Rule 1110.2, as amended on 2/1/2008, has additional source testing requirements for 15-minute NOx and CO emission tests at an engine's actual peak load and at actual minimum load. These requirements, however, will not apply to this application because the permit will limit the operation of the engine to one defined load (i.e., 350 BHP, +/- 10%). Specific permit condition language will be added to exempt this engine from the additional test requirements.

A study sanctioned by the permit applicant showed that the actual operating HP of the engine can be verified by looking at the RPM rating of the engine. At 1,400 RPM, this engine is operating at or around 350 BHP (+/- 10%). This was proven in an earlier discussion. The actual RPM is displayed visually on a control monitor.

Other Requirements: Rule 1110.2, as amended on 2/1/2008, has additional elapsed time meter, operating log and breakdown reporting requirements. Appropriate permit conditions are added.

**Rule 1303(a): BACT**

Appl. no. 498931

No physical modification to the equipment; No emission change. Therefore, this rule does not apply.

Appl. no. 498932

The new dust collector will be installed to fulfill the BACT requirements for the three existing grinding systems covered under class-III application nos. 466443, 466444 and 466445. Compliance with this rule is expected.

**Rule 1303(b)(1): Modeling**

Appl. no. 498931

No physical modification to the equipment; No emission change. Therefore, this rule does not apply.

Appl. no. 498932

The new dust collector will reduce the PM10 emissions from three existing grinding systems covered under class-III application nos. 466443, 466444 and 466445. Therefore, this rule does not apply.



**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT****ENGINEERING AND COMPLIANCE****APPLICATION PROCESSING AND CALCULATIONS**

PAGE 15 of 16

APPL. NO.

498931, -32 &amp; -33

DATE:

10/07/09

PROCESSED BY

S. JIANG

CHECKED BY

D. GORDON

**Rule 1303(b)(2):**    **Offsets:**Appl. no. 498931

No physical modification to the equipment; No emission change. Therefore, this rule does not apply.

Appl. no. 498932

The new dust collector will reduce the PM10 emissions from three existing grinding systems covered under class-III application nos. 466443, 466444 and 466445. Therefore, this rule does not apply.

**40 CFR Part 63 Subpart ZZZZ:**    **National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines**Appl. no. 498931

Based on the Annual Reported Emissions for Reporting Period 2006/2007, the facility's HAP emissions were reported to be Hexane: 11,866.023 lbs/yr (5.93 tons/yr), Styrene: 12,406.898 lbs/yr (6.20 tons/yr), and the lesser rates for other HAP emissions. The Hexane emissions are generated from spray cans which used to clean plastic injection moulds, which is exempt to have an operation permit. The Styrene emissions are generated from Rule 219 Exempt Equipment (Compression Molding, Hand Lay-Up, Brush and Roll up Resin Operations), which is subject to 40CFR 63 Subpart WWWW. Since both processes are not required to have operating permits, each HAP emission potential cannot be estimated. Therefore, I will assume the facility is a HAP Emission Major Source.

**40 CFR 63.6585 and 63.6590:**

This engine is an existing (installed in 1998), spark ignition, 4-stroke rich burn (4SRB), stationary reciprocating ICE rated at 450 BHP, and located at a major source. Based on 40 CFR 63.6590 (b)(3), this engine is exempt from the requirements of this subpart and subpart A of Part 63. Compliance is expected.

**Reg XXX:**    **Title V Permit**

Cambro Manufacturing Co (Facility ID: 008309) has an active Title V permit. The initial Title V Permit for Cambro Clay Avenue facility was issued on July 3, 2002 and expired on July 2, 2007. A Title V Permit Renewal application was submitted on April 25, 2007, and the proposed renewal permit will be submitted to EPA for review simultaneously with the subject applications.

Appl. no. 498931

Based on the above evaluation, this application was submitted for a change of permit condition that will restrict the engine to be under single load operation only. The new condition will allow the company to have an option of not to conduct the two additional 15-minute NOx and CO emission tests at the actual peak load and at the minimum load as required in Rule 1110.2(f)(1)(C)(ii) amended February 1, 2008. Therefore, application No. 498931 is considered a Minor Permit Revisions of Title V Facility Permit and it is subject to a 45-day EPA review prior to final revision of the Title V Facility Permit (Application No. 498933).

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT****ENGINEERING AND COMPLIANCE****APPLICATION PROCESSING AND CALCULATIONS**

PAGE 16 of 16

APPL. NO.

498931, -32 &amp; -33

DATE:

10/07/09

PROCESSED BY

S. JIANG

CHECKED BY

D. GORDON

Appl. no. 498932

Based on the above evaluation, the new dust collector will reduce the PM10 emissions on site. Therefore, application No. 498932 is considered a Minor Permit Revisions of Title V Facility Permit and it is subject to a 45-day EPA review prior to final revision of the Title V Facility Permit (Application No. 498933).

**CONCLUSION AND RECOMMENDATIONS**

Based on this evaluation, it is expected that the subject equipment will be operated in compliance with all applicable District Rules and Regulations. The Permit to Operate is recommended to be issued.